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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/722,168	11/22/2000	Clifford Brown	21-006	3876

22898 7590 11/29/2006

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EXAMINER

KIM, KEVIN

ART UNIT PAPER NUMBER

2611

DATE MAILED: 11/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/722,168

Applicant(s)

BROWN ET AL.

Examiner

Kevin Y. Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-14,17-19,33-54,56-62,70 and 73-80 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17,41-48,50-53,76,77,79 and 80 is/are allowed.
- 6) ☒ Claim(s) 1,4-10,12,18,19,33-40,49,54,56-62,70,73-75 and 78 is/are rejected.
- 7) ☒ Claim(s) 3,11,13,14 and 61 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The indicated allowability of claims 1 is withdrawn in view of reference(s) to US patent No 4,381,546 submitted by applicant on September 12, 2006. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1,4,5,7,8,9,18,54, 56,58,59 are rejected under 35 U.S.C. 102(b) as being anticipated by Armstrong (US 4,381,546 submitted by applicant as part of IDS filed on September 12, 2006).

Claims 1 and 54.

Armstrong teaches a device for detecting impairments in a digital quadrature amplitude modulated signal comprising:

a phase noise detector (5C) comprising;

a sorter (see col.3, lines 44-68);

a rotator coupled to the sorter (see col.4, lines 5-6); and

a comparator (see col.4, line 18-21) coupled to the rotator;

a compression detector (5A);

an interference detector (5B); and

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(previously presented) A device for detecting impairments in a digital
a constellation storage coupled to the phase noise detector, the compression
detector, and the interference detector.

Claims 4 and 18.

See col. 4, lines 7-13 for the recited vector.

Claims 5,56.

See col.4, line 57 for the inequality.

Claims 7, 58.

See col.3, lines 44-68 for a sorter.

See col. 4, lines18-21 for an X/Y deviation terminator.

Claim 8.

The compression detector (5A) and phase noise detector (5C) share an X/Y deviation
determinator (see col.4, line 18-21).

Claims 9,59.

See col.4, line 57 for the inequality.

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4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 6,10, 19,33-40, 57,60,62,70,73-75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Armstrong.

Claims 6,10,40,57,60.

Armstrong discloses all the subject matter claimed except for defining a value for what seems to be constant C. However, since the exact value of a constant is a matter of design choice, the recited values would have been obvious depending on design criteria.

Claims 19, 62,70.

Armstrong fails to teach that the interference detector (Fig.5A) comprises an error calculator, a distribution chart and a data peak detector. But Armstrong teaches comparing statistical properties of constellations and an error calculator, a distribution chart and a data peak detector would have been obviously included in the interference detector since these are well known parameters used in statistical analysis.

Claims 33-35,73.

Armstrong discloses a method and apparatus for detecting compression in a digital quadrature amplitude modulated signal, comprising the steps of:

sorting the symbols of the digital quadrature amplitude modulated signal into a constellation (see col.3, lines 44-68) and comparing the constellation, after rotating, to the ideal constellation (Fig.2 for instance). Armstrong does not describe selecting a sub-group of data points from the constellation; determining the magnitude of the vectors from the origin of the

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constellation to each datum point of the sub-group; determining the magnitude of a vector from the origin to an ideal point associated with the sub-group; comparing the magnitude of the vectors from the origin of the constellation to each datum point to the magnitude of the vector from the origin to the ideal point associated with the sub-group. In other words, Armstrong teaches quantitative analysis rather than qualitative analysis. However, a qualitative analysis is just as well known in the art as the quantitative analysis when the objective is to see whether or not a received signal is impaired. Thus, it would have been obvious to one skilled in the art to compare the magnitude of received data mapped on the constellation to the ideal data points for the purpose of producing a signal to the use indicating whether it is impaired or not.

Claims 36-39,74,75.

Since there are a plurality of data points on the constellation, it would have been obvious to compute the average of them before comparing it to the ideal data point.

Claim Rejections - 35 USC § 112

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 5,6,7,8,9,10,12,19,39,40,49,54,56,57,59,60,61,75,78 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 5 and 56 recite terms σ_x , C and σ_y that are not defined..

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Claims 7,8,19 and 54.

“X/Y deviation ” is not defined.

Claims 9,39,59 and 75 recite terms “ Z_{ave} ”, “C” and Z_{exp} ” but fails to define their meanings.

Claims 12,49, 61 and 78 recite terms such as “ $Y_{ave}[b4]$ ” but fails to define their meanings.

Claims 6,10,40,57, 60 and are rejected for the same reason for their respective dependence on rejected claims.

Allowable Subject Matter

6. Claims 17, 41-48, 50-53,76,77,79,80 are allowed.

7. Claims 3, 11,13, 14,61 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Y. Kim whose telephone number is 571-272-3039. The examiner can normally be reached on 8AM --5PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

November 27, 2006

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KEVIN KIM
PRIMARY PATENT EXAMINER

